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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,992	02/21/2006	Jurgen Meyer	032301.443	1784
25461 7590 06/24/2009 SMITH, GAMBRELL & RUSSELL SUITE 3100, PROMENADE II 1230 PEACHTREE STREET, N.E. ATLANTA, GA 30309-3592				
EXAMINER				
BROWN, COURTNEY A				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/568,992

Applicant(s)

MEYER ET AL.

Examiner

COURTNEY BROWN

Art Unit

1616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/02)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Acknowledgement of Receipt/Status of Claims

This Office Action is in response to the amendment filed April 6, 2009. Claims **1-14** are pending in the application. Claims **12-14** are newly added. Claims **1-14** are being examined for patentability.

Applicant's arguments, see pages 18-22, filed April 6, 2009, with respect to the rejection(s) of claim(s) 1-11 under 35 USC 103 (a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection has been made below.

Rejections not reiterated from the previous Office Action are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set of rejections and/or objections presently being applied to the instant application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerner et al. (US 2002/0168524 A1) in view of Shimohata et al. (JP 2003292790 A).

Applicant's Invention

Applicant claims surface-modified zinc oxides, characterized in that they have the following physico-chemical characteristic data: BET surface areas: $18 \pm 5 \text{ m}^2 / \text{g}$, C content: 0.5 to 1.0 wt. %

***Determination of the scope and the content of the prior art
(MPEP 2141.01)***

Kerner et al. teach surface-modified, doped, pyrogenically produced oxides such as zinc oxide (see [0005]) surface-modified with one or several organosilane compounds as disclosed in claim 2 of the instant application (see abstract and [0007-0118] of reference). Kerner et al. teach a method of producing the surface-modified, pyrogenically produced oxides doped by aerosol, characterized in that the pyrogenically produced oxides doped by aerosol are placed in a suitable mixing container, sprayed under intensive mixing, optionally with water and/or acid at first and subsequently with the surface-modification reagent or a mixture of several surface-modification reagents, optionally re-mixed 15 to 30 minutes and are subsequently tempered at a temperature of 100 to 400 degrees Celsius for a period of 1 to 6 hours ([0119]). Further, Kerner et al. teach a production method for surface-modified, pyrogenically produced oxides doped by aerosol wherein the pyrogenically produced oxide starting material is mixed as homogeneously as possible with organohalosilanes under conditions, where oxygen is excluded, followed by a step where the mixture is heated with slight amounts of water vapor and optionally, in a continuous stream of inert gas in a treatment chamber

designed as an upright tubular oven at temperatures of 200 to 800 degrees Celsius, preferably 400 to 600 degrees Celsius. The solid and gaseous reaction products are then separated from each other and the solid products deacidified again if necessary and dried (see [0121]). Kerner et al. teach that the pyrogenically produced oxides doped by aerosol can be doped, pyrogenically produced oxides of metals and/or metalloids in which the base components are oxides of metals and/or metalloids produced pyrogenically by flame hydrolysis wherein the BET surface of the doped oxides is between 5 and 600 m²/g ([0122]). Kerner et al. additionally teaches the use of the pyrogenically produced, surface-modified and doped oxides as UV blockers in cosmetics ([0145]).

***Ascertainment of the difference between the prior art and the claims
(MPEP 2141.02)***

The difference between the invention of the instant application and that of Kerner et al. is that the instant invention requires that the surface-modified zinc oxide have an average diameter of 50 to 300 nm as opposed to being silent. For this reason, the teaching of Shimohata et al. is joined. Shimohata et al. teach a resin composition which is characterized by containing composite particle powder which has an average particle diameter of 0.01 to 10.0 microns and is prepared by coating the particle surfaces of zinc oxide particle powder with an organosilane compound (see PROBLEM TO BE SOLVED SECTION).

A second difference between the invention of the instant application and that of Kerner et al. is that the instant invention requires that the surface-modified zinc oxide have a carbon content between 0.1-5 % as opposed to being silent. For this reason, the teaching of Shimohata et al. is again joined. Shimohata et al. teach the use of carbon black on a zinc oxide composite particle powder wherein the coating weight of said carbon black is 1-100% ([0013]).

A third difference between the invention of the instant application and that of Kerner et al. is that the instant invention requires a sunscreen preparation comprising the claimed surface modified zinc oxide and a carrier such as ethylhexylmethoxycinnamate as opposed to being silent. For this reason, the teaching of Anderson et al. is joined. Anderson et al. teach the use of ethylhexylmethoxycinnamate in a sunscreen preparation (see claims 1 and 8 of reference).

A final difference between the invention of the instant application and that of Kerner et al. is that the instant invention requires that **a.)**the surface-modified zinc oxide aggregates have a shape factor $F(\text{circle})$ of below 0.5 and **b.)** the surface modified zinc-oxide powder displays at its surface an oxygen concentration as non-desorbable moisture in the form of Zn-OH and/or Zn-OH₂ units of at least 40%.

Finding of prima facie obviousness

Rationale and Motivation (MPEP 2142-2143)

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of the two cited references to arrive at a topical sunscreen composition comprising surface-modified zinc oxides. Shimohata et al. teach that the addition of carbon black and a organosiloxane provides a composition having excellent mechanical strength, light resistance and ageing resistance (see PROBLEM TO BE SOLVED SECTION). One would have been motivated to make this combination in order to receive the expected benefit of having a sunscreen composition that contains particles having excellent mechanical strength, light resistance and ageing resistance.

In reference to the surface-modified zinc oxide aggregates having **a.)** a shape factor $F(\text{circle})$ of below 0.5 and **b.)** displaying at its surface an oxygen concentration as non-desorbable moisture in the form of Zn-OH and/or Zn-OH₂ units of at least 40%, In reference to **a.)**, Shimohata et al. teach that particle shape of zinc oxide particle powder may be in any shape, such as a globular shape, grain form, the shape of a polyhedron, a needle, a spindle shape, rice grain shape, flaky, scaly, tabular ([0017] of Shimohata et al.) and Kerner et al. teach that the aggregate structure or agglomerate structure of the pyrogenic oxide can be influenced by selecting suitable doping components ([0132]). Therefore, the shape factor as well as **b.)** the oxygen concentrations at the zinc oxide's surface are **physio-chemical properties** which are inherently possessed by the surface-modified zinc oxide, depending on the components used to modify the zinc oxide's surface and other physical factors.

All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Therefore, the claimed invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made because every element of the invention has been fairly suggested by the cited reference.

Response to Arguments

Applicant's arguments, filed November 4, 2008, with respect to the 103 rejection of claims 1-11 are rejected under 35 U.S.C. 103(a) over Mitchnick et al. (US Patent 5,486,631) in view of Ettlinger et al. (US Patent 6,022,404) and further in view of Anderson et al. (US Patent 6,521,668 B2) have been considered but are moot in view of the new ground(s) of rejection.

The claims remain rejected.

Conclusion

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR Only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions on access to the Private PAIR system, contact the Electron Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Courtney Brown, whose telephone number is 571-270-3284. The examiner can normally be reached on Monday-Friday from 8 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Courtney A. Brown
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*/Mina Haghighatian/
Primary Examiner, Art Unit 1616*